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of the wires belong to the system of the loci, and the fixed points are found from the condition that the radius of the circle is a mean proportional between the distances from the center to the inverse points.

CORNELL UNIVERSITY, V. KARAPETOFF
June 25, 1910

QUOTATIONS

THE DOCTOR AND THE PUBLIC

IN an article entitled "The Widening Sphere of Medicine," but which might as appropriately have been entitled "The Doctor and the Public," read last year as the Shattuck lecture before the Massachusetts Medical Society, and now printed by the department of neurology of Harvard University,¹ Dr. E. W. Taylor, of Boston, indicates and attempts to estimate the significance of various well-defined tendencies in present-day medicine. Dr. Taylor was led to this subject by a consideration of the rapidly widening scope of medical theory and practise, with its new and unique opportunities, and the apparent disinclination on the part of many men of promise and varied attainments to take up medicine as a career. What, however, must strike every reader of Dr. Taylor's wise and scholarly address is not so much the natural extension and development of the scope and attainments of medical science, extraordinary though these have been, nor the avoidance of medicine as a career by men of outstanding ability—an economic problem possibly more felt in America than here—but the manner in which the writer discerns the new conceptions and ideals which have accompanied the development of medical science, lays bare the significance of certain economic adjustments, and, as if from some point of vantage, scans the signs of the times and foretells the dawn of a new era in the aims and practise of medicine.

Archbishop Trench said that a man might fairly be assumed to remember clearly and well

¹ "The Widening Sphere of Medicine," the Shattuck lecture before the Massachusetts Medical Society, June, 1909, by E. W. Taylor, M.D., Boston, department of neurology, Harvard Medical School, Vol. IV., 1910.

for sixty years back, and that only five of these sixties would carry us back to the age of Spenser, and not more than eight to the time of Chaucer and Wiclif. In that time the English language has become metamorphosed; yet any one of the imagined series of eight men, Dr. Trench said, would have denied that there had been in his lifetime any change worth mentioning. It can not be said that the statement holds good for medicine. The changes in a single lifetime have been so great, the innovations—anesthesia, antisepsis, bacteriology, and in the minute anatomy of the body, to name only a few—so startling, that new sciences have sprung into being and the medical man of to-day speaks a different language even from his immediate predecessor. These changes strike everybody, but changes—perhaps more revolutionary, though less noticeable—are now in process, and they concern the relations subsisting between the medical man and the public. It is to this altered phase that Dr. Taylor draws attention, and it is to meet the altered conditions that he desiderates corresponding adaptations in the teaching faculties.

One of the first of these changes to which Dr. Taylor alludes is the absence of secrecy. From time immemorial medicine has been a secret art. Even a generation ago the apprentice was bound by agreement "not to reveal or to divulge any of his master's secrets *or the secrets of his profession*"; to-day the medical practitioner, in his relations with a private patient, frequently explains not only the nature of the case, but the *rationale* of the treatment, with the hope of securing the patient's willing cooperation. What Dr. Taylor calls this gradual removal of mystery has had far-reaching effects. The doctor's mere dictum no longer carries weight; "his Latin prescriptions, if he still writes them, are doubtfully scrutinized, and the patient more and more demands to know what he is taking and why; he readily seeks other advice outside the profession if the expected benefit does not result from the treatment prescribed. . . . The doctor of the present day shares the practise of medicine as never before with persons

wholly without or with inadequate medical training." As a consequence of this changed relation, Dr. Taylor says that the profession stands at a parting of the ways, and he asks, "Will it proceed, fenced in by conventionality and the traditions of the past, or will it respond to the insistent demands of the times and widen its sphere of activity?"

As a natural extension of this "letting in of the light," the public has become increasingly interested in medical affairs. Public lectures are given, and magazine articles for popular reading are printed, on the greatest variety of medical topics. Concerning these Dr. Taylor says that it is a striking sign of a changed attitude that not many years ago any popular exposition of medicine by a physician was looked upon as a doubtful procedure, indicative of personal self-interest. This narrow state of mind, he says, is happily past, and he looks for the development of a useful, if small, number of physicians who have the capacity and inclination to widen the scope of medicine by these means.

The entering wedge of this movement, however, Dr. Taylor considers to have been the campaign against tuberculosis. He quotes Professor Osler as having said that tuberculosis was no longer a medical, but a social, problem. A recent tuberculosis exhibition in New York had an attendance of 750,000 people, and these figures have been approached in many smaller cities throughout the United States. In this campaign against tuberculosis the profession has enlisted not only the sympathy and practical support of the public, but its active cooperation.

In America, Dr. Taylor cites also the development of "social service" as one of the most significant features of the widening of medical activity. Beginning some years ago in the Massachusetts General Hospital, and since adopted at a number of institutions in Boston, departments have been formed for the purpose of studying the underlying causes of disease and the social problems connected therewith, through the agency of trained workers under medical direction. The abandoning of secrecy, the shifting of medicine from an empiric basis

to one founded on scientific conclusions drawn from data accessible to every one, and the enlistment of the public in many medical activities is making the profession less and less a closed body of experts who, to quote a letter which appeared in the *Journal* of August 20, "practise medicine as between man and man, accepting individual responsibility and accepting individual reward," and more and more an organized department of public and social service, with ramifications extending in every direction.

This change is naturally not without its attendant disadvantages. The response to the public demand for information has not always been wise either in matter or form; the writers of popular treatises have too often provided empty dogma in place of proved fact; the susceptibility of the public mind to the potent influences of suggestion has at times been overlooked, and in one important department, that of psychotherapy, the public has been left largely to its own devices, to become the victims of Christian Scientists and other dabblers in the occult, or, occasionally, the sacrificial offerings of well-intentioned but misguided clergymen.

A field grows at its fringes, and it is here that the weeds abound. As a recent correspondence in our columns will show, the sphere of "spiritual" or "mental" healing is at times, and quite erroneously, supposed to be a kind of "no man's land." Such a designation can not be too strongly rebutted. What usually passes under the name of "spiritual healing" is at bottom—unless it be miraculous—nothing other than treatment by suggestion, a department appertaining solely to medicine, and one to be undertaken by no one unless specially conversant with psycho-analytic and psycho-therapeutic methods. Surely the clergyman who undertakes the spiritual healing of diseases—such as, for example, myasthenia gravis—does not realize the loss he and his patients suffer by his exchanging his honorable calling for another in which he has no proper training. Doubtless, as Dr. William Salmon says in his "*Ars Chirurgica*" (London, 1698), there have always been those who,

Whatever their Qualifications were before, whether a Preacher, a Reader of Prayers . . . or a Bellows-blower, or Nothing at all, it matters not much, for at once, in the twinkling of an Eye, as it were, after a Miraculous manner, they can mount from the profundity of Ignorance to the Pinnacles of Knowledge; from the Abyss of Nothing, to the Altitude of being Doctors of Physic, intruding into our Business with all the Impudence imaginable, to the great Abuse and Scandal of the Medical Art.

But the point which Dr. Taylor wishes to press home is that the enormous spread of these irregular practises at the confines of the medical art is permitted by the failure of teaching bodies to adjust their curriculums in harmony with the fullest requirements of the community.

The profession at large is rising to a clear recognition of its widening responsibilities in the broadest social and even political relationships. The medical schools are still bound by the traditions of medical education as it was thirty years ago.

So far as psychiatry and this country are concerned, we hope that the successive resolutions of the Medico-Psychological Association and the British Medical Association will not be in vain, and that ere long thorough tuition in all branches of psychological medicine will be offered by every medical school. For the broader issues of Dr. Taylor's discourse we would refer readers to the article itself, but it is pertinent to the occasion to say here that he prophesies the development of an elective system of medical education.

It is not to be doubted that the wasteful method of demanding a detailed course in surgery, for example, from the prospective internist, or of obstetrics from the future bacteriologist, will give place to a more rational conception of the use of time. An elective system modified to meet the special demands of the situation is an inevitable outcome of the present state of affairs if our medical schools are to be the centers of educational activity which their equipment justifies.

In the foregoing we have of set purpose attempted merely to adumbrate the changing relations between the profession and the public as indicated by isolated instances selected from an address which should be read in its en-

tirety. Although descriptive of American conditions and intended for American ears, Dr. Taylor's address is in some degree applicable to this country. The same changes are observable, and there is the same need for constant readjustment of medical teaching to meet these changes. Nebulous as yet, the altering conceptions of the functions and practical duties of the medical man may take this or that shape, may be guided by a united profession into fertilizing rains or crystallized by one-sided legislation into the first snows of the winter of our discontent. Readers of the deeply interesting correspondence in our columns upon proposed legislative changes will have observed the sharp cleavage of opinion even amongst medical men upon these proposals. It is outside the purpose of this article to discuss these matters, but it is evident that if the profession is to secure in the future the just reward of its labors and to maintain its rights in the approaching conflict between individualism and collectivism, it must frankly recognize the altering status of the medical man in the social economy, decide upon a common plan of action to meet changing conditions, and present a solid front to all attempts to encroach upon its legitimate territory.—*The British Medical Journal*.

SCIENTIFIC BOOKS

A History of the Logarithmic Slide Rule and Allied Instruments. By FLORIAN CAJORI, Ph.D.

The slide rule enjoys a wide popularity, being employed in practically all of the large engineering schools in addition to its use by practising engineers. Parenthetically it may be safely asserted that mathematicians in general do not avail themselves of the services of this instrument. Because of the wide use, such a history as this by Professor Cajori of the gradual development of the slide rule through the course of three centuries should appeal to a large circle of readers. While written in popular style for this larger class of readers and not primarily for the historian of science, yet the work bears evidence of considerable research in the literature of the